



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/920,450	08/01/2001	Yasuhiro Koizumi	A-407	4681

802 7590 12/31/2002

DELLETT AND WALTERS
310 S.W. FOURTH AVENUE
SUITE 1101
PORTLAND, OR 97204

EXAMINER

VALENTIN, JUAN D

ART UNIT	PAPER NUMBER
----------	--------------

2877

DATE MAILED: 12/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

09/920,450

Applicant(s)

KOIZUMI ET AL.

Examiner

Juan D Valentin II

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the fifth paragraph of 35 U.S.C. 112:

A claim in multiple dependent form shall contain a reference, in the alternative only, to more than one claim previously set forth and then specify a further limitation of the subject matter claimed. A multiple dependent claim shall not serve as a basis for any other multiple dependent claim. A multiple dependent claim shall be construed to incorporate by reference all the limitations of the particular claim in relation to which it is being considered.

1. Claim 7 rejected under 35 U.S.C. 112, fifth paragraph, as being a multiple dependant claim. Claim 7 refers back to Claims 2-6; therefore, claim 7 is a multiple dependant claim to the multiple dependant claim 4.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1⁷ rejected under 35 U.S.C. 103(a) as being unpatentable over Ooki et al. (USPN '363, hereinafter Ooki) in view of Tzu et al. (USPN '392, hereinafter Tzu).

Claim 1

Ooki discloses a defect inspection apparatus (observation apparatus) for a phase shift mask having a phase shifter pattern provided on a mask transparent substrate. That is characterized in that after said phase shifter pattern has been formed, a phase shifter defect inspection is performed from a mask transparent substrate side of said phase shift mask (col. 1,

Art Unit: 2877

lines 14-25). It is the position of the Office that in order for the observation apparatus to detect defects during manufacturing, first a phase shifter pattern must be formed.

Ooki substantially teaches the claimed invention except that it fails to show a phase shifter defect inspection performed from the mask transparent substrate side of the phase shift mask. Tzu shows that it is known to provide a defect inspection performed from the mask transparent substrate side of the phase shift mask for a phase shifting mask inspection system (Fig. 3). It would have been obvious to someone of ordinary skill in the art to combine the device of Ooki with the defect inspection performed from the mask transparent substrate side of the phase shift mask of Tzu for the purposes of providing a convergent light beam creating a beam spot just above the phase shifting patterns.

Claim 2

Ooki discloses a defect inspection apparatus for a phase shift mask where reflection images of at least two different phase shifter pattern fabricated regions are captured. Then respective image signals of the reflection images are compared with each other to detect a defect on the mask from a difference between said signals (col. 9 and 11, lines 45-55 and 10-13, resp.).

Ooki substantially teaches the claimed invention except that it fails to show a phase shifter defect inspection performed from the mask transparent substrate side of the phase shift mask. Tzu shows that it is known to provide a defect inspection performed from the mask transparent substrate side of the phase shift mask for a phase shifting mask inspection system (Fig. 3). It would have been obvious to someone of ordinary skill in the art to combine the device of Ooki with the defect inspection performed from the mask transparent substrate side of

Art Unit: 2877

the phase shift mask of Tzu for the purposes of providing a convergent light beam creating a beam spot just above the phase shifting patterns.

Claim 3

Ooki substantially teaches the claimed invention except that it fails to show wherein said at least two different phase shifter pattern fabricated regions are phase shifter pattern fabricated regions of chips different from each other. Tzu shows that it is known to provide an at least two different phase shifter pattern fabricated regions are phase shifter pattern fabricated regions of chips different from each other for a phase shifting mask inspection system (col. 3, lines 17-19). It would have been obvious to someone of ordinary skill in the art to combine the device of Ooki with the at least two different phase shifter pattern fabricated regions of chips different from each other of Tzu for the purposes of providing data comparison between subsequent substrates during manufacturing. It is the position of the Office that with the two die apparatus of Tzu, two different chips are able to be inspected/observed at the same time. Therefore, the reference of Tzu reads upon the claimed limitations.

Claim 4

Ooki substantially teaches the claimed invention except that it fails to show the reflection images of at least two different phase shifter pattern fabricated regions being captured through respective magnifying optical systems. Tzu shows that it is known to provide reflection images of at least two different phase shifter pattern fabricated regions being captured through respective magnifying optical systems for a phase shifting mask inspection system (Fig. 3). It would have been obvious to someone of ordinary skill in the art to combine the device of Ooki with the different phase shifter pattern fabricated regions being captured through respective magnifying

Art Unit: 2877

optical systems of Tzu for the purposes of providing varying image definition and depth of focus between the optical systems.

Claim 5

Ooki in view of Tzu discloses a defect inspection apparatus for a phase shift mask wherein at least two different phase shifter pattern fabricated regions are phase shifter pattern fabricated regions in an identical chip pattern (col. 11, lines 10-13). It is the position of the Office that if two different light spots are formed on a single sample, then two different light spots are analyzing two different areas on an identical patterned reticle.

Claim 6

Ooki in view of Tzu discloses in conjunction with Fig. 3, a defect inspection apparatus for a phase shift mask wherein the reflection images of said at least two different phase shifter pattern fabricated regions are captured through an identical magnifying optical system (col. 25, lines 1-10).

Claim 7

Ooki in view of Tzu discloses a defect inspection apparatus for a phase shift mask wherein said reflection images obtained by reflected light are dark field images obtained by dark field illumination or bright field images obtained by bright field illumination (col. 27, lines 23-30). It is the position of the Office that in order to have a bright field image, there must be some form of bright field illumination, therefore the reference of Ooki in view of Tzu reads upon the applicants claimed limitations.

Art Unit: 2877

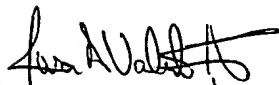
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan D Valentin II whose telephone number is (703) 605-4226.

The examiner can normally be reached on M-Th., Every other Fr..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (703) 308-4881. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308- 0955.


Juan D. Valentin II
Examiner 2877

JDV

December 24, 2002


Michael P. Stafira
Primary Patent Examiner
Technology Center 2800